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AUTHOR Stedman, Lawrence C.
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ABSTRACT

This review of the effective schools literature focuses on six teaching factors: the nature of instructional materials, lower versus higher order skills, classroom reinforcement practices, teacher selection, teacher training, and individual versus whole-group instruction. Different from earlier studies, the review concentrates on specific instructional factors, involves a more comprehensive set of studies than has been previously assembled, points out which studies were methodologically flawed, and describes their errors. By identifying maverick schools and their characteristics, this review shows that there are two types of effective schools. The first (and most common) type is organized around curriculum objectives, a single textbook series, and reading and mathematics skills measured by standardized tests. The second is organized around a well-rounded liberal arts curriculum, a diverse set of materials, higher-order skills, and student development. Both types of effective schools generally pick their own teaching staffs, provide practical inservice training built into the instructional program, and use flexible small-group instruction or individualization rather than whole-group instruction. Flawed studies prevented any firm conclusions concerning the use of phonics or direct instruction. The evidence on classroom reinforcement patterns was contradictory. A nine-page bibliography is appended.
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INSTRUCTIONAL FACTORS IN EFFECTIVE SCHOOLS: A REVIEW OF THE RESEARCH

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Prepared by:

Lawrence C. Stedman
Graduate student
Educational Policy Studies
University of Wisconsin
Madison, Wisconsin
May 1985
Revised December 1986

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Abstract

This review of the effective schools literature focuses on six teaching factors: instructional materials, lower vs. higher order skills, classroom reinforcement practices, teacher selection, teacher training, and individual vs. whole group instruction. It shows that there are two types of effective schools. The first was organized around curriculum objectives, a single textbook series, and the reading and math skills measured by standardized tests. The second was organized around a well-rounded liberal arts curriculum, a diverse set of materials, higher-order skills, and student development.

Both types of effective schools generally picked their own teaching staffs, provided practical in-service training built into the instructional program, and used flexible small group instruction or individualization rather than whole group instruction.

Flawed studies prevented any firm conclusions concerning the use of phonics or direct instruction. The evidence on classroom reinforcement patterns was contradictory.

"Instructional Factors in Effective Schools : A Review of the Research"

This review of the effective schools literature pays particular attention to six teaching factors: the nature of instructional materials, lower vs. higher order skills, classroom reinforcement practices, teacher selection, teacher training, and individual vs. whole group instruction. The studies surveyed are "effective schools" studies as opposed to "school effects" studies (see Ralph & Fennessey, 1983). That is, the research design consisted of identifying maverick schools and their characteristics. I have excluded studies that used the traditional school effects methodology in which researchers examine variations in achievement as a function of school characteristics across an entire sample of schools (e.g. Coleman et al, 1966).

The literature has been reviewed several times before (see, e.g., Edmonds, 1979a; Glenn, 1980; Purkey & Smith, 1983; Ralph & Fennessey, 1983). Early reviewers were laudatory, presenting findings without regards to the quality of the studies. Later reviewers were critical, pointing out numerous errors in methodology, but they did not systematically assess the literature's support for the early reviewers' summaries. One consequence has been that the Edmonds' five factor model has been widely popularized and continues to be the basis of school improvement projects, yet the literature does not support it (see Stedman review, 1985).

In summarizing the literature, early reviewers made several mistakes: overlooking studies that refuted Edmonds' formulation, overlooking data in studies that contradicted the researchers' conclusions, making errors in describing researchers' conclusions, and ignoring the quality of the studies.

To avoid such problems, this review differs from previous ones in several important respects. It concentrates on specific instructional factors rather than the Edmonds' model. These factors can provide concrete guidance for improvement projects whereas some of the Edmonds' factors, such as high teacher expectations and positive school climate, are abstract and hard to duplicate. This review also involves a more comprehensive set of studies than has been previously assembled. I examined the most widely reported studies as well as a number of important studies that have received little attention. These include Silberman's pioneering study (1970) and effective school studies of the 1966 EEOS Coleman data (Edmonds and Frederiksen, 1979; Fetters and Thompson, 1970), the SAT decline (Thomson and DeLeonibus, 1978; Echternacht, 1977), and Massachusetts elementary schools (Ellis, 1975). This last is important because researchers used a blind design and systematically evaluated school characteristics.

Finally, to ensure that my conclusions are based on the higher quality studies, I point out which studies were methodologically flawed and describe their errors. Three major errors are worth describing at the outset. First, several

researchers failed to properly control SES, yet if the compositional component of a school's achievement is not controlled, we cannot be sure the school is truly effective. The school's high achievement might be due to a favorable composition rather than school organization and practices.

Second, many researchers selected schools that did not have very high achievement. In such cases, school characteristics purported to be associated with effectiveness may not be. In improving school studies, for example, schools were selected if they had improved relative to their beginning achievement level. Because this beginning achievement was often quite low, a school could improve and yet still have very low achievement. In outlier studies, schools were selected if they had done better than one would have expected given their social composition. Because the expected achievement level for low-income schools was quite low, low-income schools could do enough better-than-expected to be classified effective and yet still have very poor achievement (Klitgaard, 1975; Cohen, 1980, p. 8; Rowan, Bossert, & Dwyer, 1983).

The third error involved the lack of comparison schools. Ellis (1975) described this serious problem:

> Studies that confine themselves to looking at successful studies to see what makes them succeed run the risk that the school factors they identify as being related to excellence may very well exist either to varying degrees or with equal potency in failing schools. (p. 9)

Yet in many cases researchers selected only successful schools.

In what follows, I do not always reach definite conclusions about the literature- either because too many studies were flawed or because there was conflicting evidence. It should also be noted that many researchers did not address the six instructional factors at issue. Nevertheless, several conclusions are reached, particularly concerning the organization of instruction and the utility of in-service training.

Nature of the Curriculum and Materials

Many researchers concluded that phonics instruction and phonics based instructional materials were crucial for effectiveness. Weber (1971), for example, in one of the pioneering effective schools studies, identified four exceptional low-income schools: Woodland in Kansas City, Ann Street in L.A., PS 11 in New York City, and Finley in Harlem. All had achieved middle-class achievement levels in 3rd grade reading. He found that all four schools used phonics more than the typical inner-city school. Two employed the Sullivan reading series which was phonics based and the other two employed an extensive array of phonics materials. He concluded that a phonics emphasis was a prerequisite of reading success.

Benjamin (1980b), a journalist for the Cincinnati Post, after a national survey of effective elementary schools, also concluded that an emphasis on phonics was essential. He blamed the International Reading Association and the National Council of Teachers of English for impeding progress by supporting "language

experience" approaches to reading. He identified phonics programs in several schools, including the Beasley Academic Center in Chicago, Wesley in Houston, and Robinson in East St. Louis. These schools were all located in impoverished communities yet had achieved national norm or higher test scores. The latter two had achieved success through the use of the Engelmann-Bereiter DISTAR (Direct Instruction Systems for Teaching and Remediation) program, a drill based, small group scripted instructional system that stresses phonics.

Fuerst (1976) described 12 elementary schools and one school district in Chicago that had also used DISTAR to achieve grade level success.

Although Glenn (1980) did not reach specific conclusions about phonics, one of her effective school examples, the Richmond school district, employed a city wide reading series that was phonics based. Using this series, the district, whose students were predominantly poor and black, had raised its elementary school scores to near national norms.

Before we embrace a rush to phonics based instruction, however, several other studies should be considered. California (1980) researchers, in a study of the implementation of the state's Early Childhood Education program (ECE), expressly warned against an overemphasis on phonics as they found it to be associated with decreasing scores (pp. 24-6). They advocated instead a balanced approach with an emphasis on integrated skills such as comprehension and story writing. Their study was focused

on schools with low initial achievement. Hentoff (1977) observed PS 91, a Brooklyn elementary school with national norm performance in spite of having over half the students on free lunch and 81% black. Although he found that teachers were using a concrete approach to phonics, the striking feature of the curriculum was its emphasis on good literature. Ellis (1975) found that effective and ineffective schools placed an equal emphasis on phonics.

Problems with most of these studies prevent drawing conclusions about phonics. These problems affected both the studies that showed phonics important and those that did not. Benjamin, for example, had no comparison schools, so we do not know if his schools employed phonics any more than did other low-income schools. The Beasley Academic Center's high test scores may have been due to its selective admissions policy whose effects were not controlled. Weber's schools only demonstrated their effectiveness through 3rd grade, but it is the 4th grade and on at which the decline of low-income scores becomes severe. One of the schools, Woodland, only demonstrated its effectiveness for one year. Fuerst presented only one year of data for his 12 schools, so we do not know if the schools maintained their effectiveness over time. The achievement data on all but one school involved only the 2nd grade and 4 of the schools were high SES, so their grade level success is hardly exceptional. He had 6th grade achievement data on Olive, but no SES data. The California study was limited because researchers failed to

control for compositional changes in the schools. Many had large influxes of Spanish speaking students and shifts in their racial majorities (California, 1980, p. 7). One-half of the decliners had major compositional changes (pp. 13, 17), and one improver had increased scores so dramatically it was considered an anomaly (p. 39). The study was also limited because it was confined to schools participating in the ECE program, an individualized small group instructional program.

Other approaches to teaching reading have also been advocated by reviewers of the literature. Hoover (1978), after a review of several journalistic accounts and visits to a few "effective" schools, claimed that a structured orthographic approach to reading characterized black schools at grade level. Many of her references, however, did not mention this and two of the 15 were not at grade level in spite of her claim (New York A, Grant). Six others had no data and 4 were private schools with no control for SES or selective admissions.

Austin (1981), who was the senior researchers in Maryland's outlier study (1976), reviewed state sponsored outlier studies and concluded that effective schools tend to use a single textbook series for all teachers at all levels (p. 45). His conclusion was supported by other researchers. Venezky and Winfield (1979) compared two similarly composed urban schools, one of which improved from a year behind to above grade level and the other of which remained a year behind. They concluded that a single program, left in place for several years, was instrumental

to effectiveness. The Richmond school district, as noted, used a single curriculum series. Those schools that employed the DISTAR method and those that used the Chicago Mastery Learning program (e.g. the May school described by Benjamin, 1980b) also employed one main curricular system. Many other schools displayed articulated curricula with instruction, materials, and testing well integrated. These included PS 27 (Fruchter, 1981), ESEA schools studied by Wellisch et al (1978), mastery learning schools studied by Levine and Stark (1981, 1982), and a host of others (Stedman, 1985).

In contrast, several other studies showed that effective schools achieved success using a diverse array of materials. PS 11 (Weber, 1971), for example, used materials from 8 or 9 reading series; Finley (Silberman, 1970; Weber, 1971) employed a wide range of story books and library books; PS 91 (Hentoff, 1977) used the Open Court reading series which they had adapted for their own purposes and taught with a variety of supplementary materials from other reading series. California researchers (1977), after identifying 21 pairs of schools through an outlier analysis, determined that it was the ineffective schools rather than the effective schools that relied more often on the same materials for all students. Most schools, though, whether effective or ineffective, used different materials with different groups. In California's (1980) study of the ECE program, researchers warned against reliance on materials to do the

teaching, stressing that in schools with improving scores new concepts and skills were taught personally.

Several of these studies were poorly executed, particularly with regards to school selection. Austin's review of outlier studies, for example, was flawed. Few of the studies emphasized a single textbook series or articulated curriculum as he claimed; as often happened in outlier studies, many schools had low achievement; and at least two studies involved inadequate SES controls (The New York and Maryland studies had SES problems- see Purkey and Smith, 1983). School achievement levels in many other studies were so low that the presence of a coordinated instructional program suggests it does not necessarily produce effectiveness. None of Wellisch et al's "successful" schools, for example, had 5th grade reading scores above the 30th percentile and only one did in math. Levine and Stark's conclusions about the need for a well-coordinated program was practically inevitable. The 9 schools and the one school district they studied were selected because they had either implemented mastery learning or a school wide approach to instructional improvement. They also studied only improving schools so whether such approaches are always successful cannot be determined. Furthermore, their conclusion can be questioned because in spite of improvements, most students in these schools still remained at low achievement levels. In the 3 New York schools, 54% to 71% of the students were still behind grade level and this was after excluding limited English students from the testing. At the May

school, cohorts were actually losing ground and after "improvement" were 1.7 years behind grade level. The 3 L.A. schools were below the 29th percentile in reading and math; their percent of reading objectives passed were up only 16, 2, and 3 points. At Powell 10 and 12 year olds had lost ground in reading. Only at Woodson had the improvements brought the school near grade level. California's ECE study (1980), as previously described, was also flawed as a result of failing to control compositional changes.

In spite of these poorly executed studies, we can still reach some conclusions about the nature of materials in effective schools. Many studies did involve well-selected schools and these show both patterns: some focused on a single textbook series or integrated test/curriculum approach while others focused on a diverse array of materials. It seems that there are actually two different ways of organizing instruction to produce effectiveness.

In a previous review of the literature, I identified the most successful schools in the literature- those that had achieved at grade level or higher for several years in spite of having predominantly poor student bodies (Stedman, 1985). After a careful analysis of observer descriptions concerning these schools, I determined that were actually two types of effective schools- one focused narrowly on testing and curriculum objectives; the other on well-rounded academic programs. The test-based school typically employed a single textbook series or well defined curriculum with reading and math broken into small

subskill exercises and frequent testing on the material; the well-rounded schools employed a diverse set of reading materials, linked more to good literature than to testing, and emphasized student development and the liberal arts more than reading and math test scores. I am not the first to notice this. Several effective school researchers implicitly or explicitly recognized the existence of these two effectiveness patterns (see, e.g., Silberman, 1970; Weber, 1971; Ellis, 1975). Interestingly, both sets of schools shared a set of supporting characteristics that appeared instrumental in their effectiveness. These included: personal attention to students, effective utilization of teachers, parental educational and political involvement, ethnic and racial emphasis, student responsibility, discipline as a by-product of organization, and preventative teaching. However, because few of the studies involved comparison schools, these supporting characteristics are not yet scientifically validated (Stedman, 1985).

Lower vs. Higher Order Skills

Results at the high school level were limited to one study. Echternacht (1977) found that high schools with declining SAT scores appeared to have made a greater effort to expand basic skill instruction than high schools with stable SAT scores. He attributed this, however, to a reaction to the score decline rather than a cause of it. He also found that both decliners and maintainers had been slow to adopt the teaching of concepts over

calculation in mathematics. Both sets of schools had similar emphases on grammar and creative writing. He concluded that "changes in the curriculum explain little of the SAT decline for this study's sample of schools" (p. 5).

At the elementary school level, several researchers were adamant that a focus on higher order skills was necessary to achieve effectiveness. In the California ECE study (1980), for example, researchers concluded:

> Schools where the curriculum presented low-level tasks, rote response, and little else had decreasing scores; while at schools that had selected more comprehensive curricula and where mastery and competence were expected and demanded, scores were increasing. (p. 16)

They found that schools that concentrated largely on reading hurt reading scores, whereas those where students used and applied reading skills in a wide range of curricular areas, improved scores.

Levine and Stark (1981), after studying a set of improving schools, also believed that more successful schools placed a greater emphasis on higher order cognitive skills. As noted, however, both of these studies had problems with school selection.

Still, a number of effective elementary schools did emphasize higher order skills, often built upon a program of basic skills. At the May school, for example, the mastery learning program not only involved lower order skills but stressed analogies, inferences, and reasoning skills (Benjamin, 1980b). PS 27 deliberately added a comprehension component to their test-based curriculum

(Fruchter, 1981). At PS 91, teachers not only taught phonics and simple skills, but emphasized inferential reading and other higher order reading skills (Hentoff, 1977).

Other effective elementary schools appeared to achieve success by concentrating on lower order skills, using deliberately structured drills on basic skills. These included the DISTAR schools (Wesley, Robinson, East St. Louis school district schools, Benjamin, 1980b).

Curriculum designers have clashed over the different approaches to elementary school effectiveness. Those involved in the DISTAR and mastery learning systems, for example, have derided each other's efforts. As one investigator described it:

> But Engelmann views that program's (mastery learning) stress on covert conceptual operations, such as making "mental pictures" of actions described in reading passages, as "amateurish"- too unspecific.
>
> Conversely, the creator of mastery learning charges that DISTAR amounts to "answering not thinking." Said Chicago's Michael Katims: "It's like what was used on prisoners in the Korean War." (Benjamin, 1980b, p. 84)

It seems, however, that both the higher and lower order skill approaches can be successful.

As noted, effective schools come in two types. The test-based schools tend to focus narrowly on reading and mathematics and on the lower order skills that characterize standardized and criterion- referenced tests. The well-rounded schools tend to focus on broad curricula and higher order, integrated skills. So it is possible to achieve effectiveness both ways (see Stedman, 1985, for an elaboration.). Ellis (1975), for

example, in one of the best executed effective schools studies (it involved a blind design), described the two types of effective schools. A majority of the urban effective poverty schools had achieved grade level by emphasizing drill instruction of basic skills and ignoring the use of reading skills. Students were often treated harshly in these schools. By contrast, the other schools had positive learning atmospheres, high quality teaching, and emphasized the ways to use reading for pleasure and information. As Ellis described the drill-based schools:

> ...they give the impression of having been Unsuccessful schools that attempted to improve student achievement through drill and practice alone. Thus, it seems, they emphasize reading by emphasizing little more than the reading skills measured by standardized tests. (p. 26)

Because students in these schools had high test scores but had spent little time using these skills, Ellis concluded that standardized tests may not measure the reading skills "normally associated with the designation 'reader'" and performance on them should be considered an "insufficient criterion" for judging effectiveness (p. 20).

This is an important observation. As long as our outcome measures primarily emphasize lower order skills, the schools that do well will likely involve those that emphasize lower-order skills. If we adopted measures that involved primarily higher order skills, many of the schools that recently have been found effective, particularly those that are drill based, would no longer do well. Our prescriptions on how to produce effectiveness in urban schools might also change.

Classroom Practices

Three factors are discussed in this section: direct instruction, classroom organization, and reinforcement patterns.

Although several commentators have felt that the findings of effective schools research parallel those of classroom research, particularly in terms of direct instruction, this reviewer concludes otherwise. Too few of the studies that dealt with this issue were well executed, and there was contradictory evidence.

To begin with those claiming support for direct instruction, Austin (1981) concluded after his review of state sponsored outlier studies that direct instruction and highly structured learning experiences were essential to effectiveness. Benjamin (1980b), after his national survey, also concluded that "direct teaching styles" were necessary and particularly criticized the advocates of open education. Certainly the DISTAR and mastery learning schools he observed used direct instruction techniques. As already discussed, both of these surveys had major problems. Many of the studies Austin reviewed did not even describe direct instruction and the schools were often poorly selected. Some of the schools Benjamin studied had low achievement and there were no comparison schools.

Other reviews and studies suggested direct instruction was not a crucial factor. Clark, Lotto, and McCarthy (1980), for example, after an extensive review of more than 1200 studies of urban schools and urban education, concluded that, while a

structured environment was important, instructional style was not. California (1980) researchers concluded that direct teaching was not present in either ECE improvers or decliners. New York (1974b) researchers found that there were no differences in reading instruction between two urban poverty schools, one of which had higher achievement. Venezky and Winfield (1979) found that curricular leadership not instruction was the crucial factor and concluded that research needed to be "shifted away from instructional methods and teacher accountability and onto the principal's leadership role and the efficiency of the entire building's instructional program" (p. 38).

These studies, however, also had problems. Clark, Lotto, and McCarthy used only minimal criteria to screen studies; they did not, for example, consider the quality of SES controls. Weaknesses in the California ECE study have already been described. The "effective" New York school can hardly be considered a model because 66% of its sixth graders were two or more years behind grade level. The lack of difference in reading instruction might be attributable to the inconsequential difference in achievement.

Other evidence in the literature also raises doubts about the direct instruction conclusion. Direct instruction is usually described as involving whole group or small group instruction with active teaching by the teacher. It is distinguished from individualization and open education approaches. But as I discuss in a subsequent section, many effective schools employed individualization to achieve success, and as discussed below,

classroom organization, whether traditional or open, did not distinguish effective from other schools.

It would be a mistake, therefore, to make any unqualified assertions about the relationship between effective schools research and direct instruction.

Classroom organization does not appear to be an effectiveness factor. Nearly all researchers who considered it, concluded that effective schools' organization could range from traditional to open (Brookover & Lezotte, 1979; Clark, Lotto, & McCarthy, 1980; Echternacht, 1977; Glenn, 1981; New York, 1976; Salganik, 1980). Glenn, for example, found that Richmond's schools varied in their organization, some were open, some traditional, and some were alternative. New York found that open, non-graded, and multi--aged organizations did not distinguish positive-residual public schools from average-residual schools. In a survey of Baltimore City high and average achieving elementary schools, Salganik found that effective schools encouraged teachers to use their preferred teaching styles, so that even within the effective schools there were marked differences in classroom organization. He was so struck by this characteristic that he coined the phrase "variable organization" to describe effective schools. Only Maryland researchers (1978) found differences in the opposite direction. High residual schools were more often traditional and never open (72% of high residual schools were traditional vs. 50% of low residual schools; 0% were open vs. 25%).

Few conclusions can be reached about reinforcement practices in effective schools. Several researchers made extensive classroom observations, but their results provide a conflicting array of evidence. Brookover et al (1979) studied two pairs of low SES schools, one black and one white, whose achievement differed substantially. They found that teachers in the higher performing schools predominantly used clear and appropriate rewards whereas those in the lower performing schools often used inappropriate and confusing ones. The problem in interpreting these findings is that their categorization of rewards was counter-intuitive. They gave the following teacher critique of a 3rd grader as an example of an <u>appropriate</u> response.

> "You're never going to fit it all on one line if you start in the middle...and Wednesday begins with a capital letter, not a small one." She then erased the student's work and said, "Now do it over."..."A capital, I said, don't you know what a capital 'W" looks like? Here watch me."..."Well, see, I knew you could do it, that's very good, keep it up." (p. 88)

Students probably did well in spite of, not because of, such treatment. Responding with "Good try" or "That's close" was considered confusing (p. 106). Brookover et al, for some reason, felt that students couldn't tell whether effort or mastery was being rewarded (p. 129). This confusing scheme obscured the connection between rewards and effectiveness.

In the California ECE study (1980), classroom observers found that teachers in schools with increasing scores asked more open-ended questions and provided more acknowledgement to students, but gave less corrective feedback. Interestingly, they

spent more time in social conversation and less time in instructional activities than did teachers in schools with decreasing scores (p. 43).

Maryland (1978) found little difference in teachers' classroom behavior in effective and ineffective schools. Students judged teachers equal on friendliness and understanding, caring, being thought-provoking, and making students feel they could talk about their problems. On 6 of 7 classroom observational scales, researchers rated teachers equal. On differentiation (individualization) ineffective school teachers rated somewhat higher. Using the Reciprocal Category System, researchers found effective school teachers doing more correcting and more eliciting, while ineffective school teachers were doing more directing. These were, however, averages with so much overlap among schools that no firm conclusions should have been drawn.

New York researchers (1976) studied classroom practices in 7 positive residual and 7 negative residual schools. They considered two types of reinforcement: general and instructional. As to general support, they found that teachers in the high residual schools provided more positive than negative reinforcement, whereas teachers in low residual schools provided more negative than positive. This was true, however, only for grades 1-3. Reinforcement patterns were similar for grades 4-6. As to instructional support, teachers in both sets of schools provided more positive than negative reinforcement, but teachers in high residual schools did provide somewhat more frequent positive

feedback. Again, these differences only manifested themselves for grades 1-3. This study has been criticized for its poor selection of schools because inadequate SES controls were used (Purkey & Smith, 1983). Also, it should be noted that observers infrequently visited the schools in the morning which was when reading was taught (New York, 1976, p. 40). This limits the validity of the conclusions, particularly with regards to instructional reinforcement.

Rutter et al (1979) followed a group of London 10 year-olds through 12 secondary schools attempting to determine the effect schooling had on attendance, academic achievement, school behavior, delinquency, and employment. This study, which received much popular attention and was widely heralded, has been devastatingly critiqued (see, e.g., Acton, 1980; Eigerman, 1980; Heath and Clifford, 1980, 1981). The criticisms covered the major aspects of the study: the achievement level of the schools, methods of data analysis, construction of process and outcome variables, intake controls, and interpretation of findings. Rutter and his researchers visited classrooms and studied reinforcement patterns, but only 1 of 6 punishment variables and only 1 of 5 reward variables were associated with achievement (pp. 120, 124). The one reward variable was the display of children's work on the walls, which seems irrelevant in high schools!

The studies of classroom reinforcement patterns, therefore, are inconclusive.

Teacher Selection

Several researchers concluded that schools that recruit their own staff are more likely to be effective (Austin, 1981; Benjamin, 1980b, p. 89; Hentoff, 1977; Salganik, 1980). Several others concluded that effective schools are more likely to have assigned staff (California, 1977; Edmonds & Frederiksen, 1979; Maryland, 1978). The researchers who emphasized hand-picked staffs, however, had studied schools that had achieved high performance levels, at or above grade levels, for several years. The other researchers had either poorly selected schools or had studied schools with only one year of achievement data. It seems reasonable to conclude that schools in which principals pick the teachers they want or in which teachers voluntarily choose to teach are more likely to be successful. At PS 91, for example, the principal culled the best of the student teachers and thereby ensured high quality teachers who were in tune with the school's philosophy and were experienced with its organization (Hentoff, 1977). The Sarah M. Roach public school in Baltimore had recently hired 9 teachers, 6 of whom had requested transfer to the school (Glenn, 1981). Salganik (1980) noted that principals in the effective schools he observed seemed adept at getting rid of ineffective teachers and attracting good ones.

Teacher Training

Nearly all researchers and many reviewers found that in-service training was essential to effectiveness (Austin, 1981;

Benjamin, 1980b; Clark, Lotto, & McCarthy, 1980; Ellis, 1975; Fliegel, 1971; Glenn, 1981; Hentoff, 1977; Hoover, 1978; Jackson et al, 1983; Levine & Stark, 1981, 1982; Lonoff, 1971; Phi Delta Kappa, 1980; Purkey & Smith, 1983; Salganik, 1980; Weber, 1971). Most of these researchers were quite specific about the type of training that was important. They described practical, on-the--job training tailored to staff and student needs. They did not describe after-school workshops in effective school theory or advocate central-office mandated programs. The training was built into the instructional program. It involved demonstration lessons for inexperienced teachers (PS 20: Lonoff, Salganik); extra preparation periods for novices, watching experienced teachers (PS 91: Hentoff); video taping of teachers' performance (PS 146: Silberman, Fliegel); principal observations and evaluations (Finley: Weber; Waverly, Richmond: Glenn); summer training (Hoover); a "buddy" system (Salganik); practical help in selecting materials, determining levels, etc. (PS 146: Fliegel); focus on teaching behaviors rather than latent characteristics (Clark, McCarthy, & Lotto); and was tied directly to the planning and operation of the instructional program (Jackson et al, Levine & Stark, Purkey & Smith).

Although there was overwhelming support in the literature for in-service training, one major caveat is in order. Most of these studies involved no comparison schools, so we do not know whether the extent of teacher training in these schools exceeded that in average or ineffective schools, or how it differed. The presump-

tion could be made that many of these observers were familiar with the typical urban school and thus were pointing out a major distinction of effective schools, but none made this particular observation and so scientifically supported conclusions about in-service training cannot yet be made.

Individual vs. Whole Group Instruction

Brookover et al (1979) were the only researchers who reported whole group instruction as a general characteristic of higher achieving schools. Nevertheless, they also noted some grouping in reading in grades 1-3. Many other researchers reported small group instruction, often for those who had fallen behind (Jefferson junior high: Anderson, 1981; Garrison and DISTAR schools: Benjamin, 1980b; PS 321, PS 27: Fruchter, 1981; Waverly: Glenn, 1981; California, 1977, 1980). A few of the researchers who reported grouping stressed that there was fluid movement across groups (Hentoff, 1977; Venezky & Winfield, 1979; Brookover et al, 1979). One reviewer reported a mixture of small group instruction in reading and math, and whole group instruction in science, social studies, and health (Austin, 1981). Many others reported individualization of instruction (Clark, Lotto, & McCarthy, 1980; Lezotte, 1981; New York, 1976; Phi Delta Kappa, 1980; Weber, 1971). In contrast, Ellis (1975) found that effective schools were low on individualization, and two of Weber's four schools were individualized only in the general sense of paying attention to individual progress.

A poor selection of schools characterized several of these studies, as did a lack of comparison groups. The particular flaws of many of these studies have already been described, so there is no need to repeat them here. The flaws of two of these studies, however, have not been mentioned before and should be pointed out. Both of these were improving school studies and many of the schools, even after improvement, still had low achievement. The Phi Delta Kappa study (1980) described 8 exceptional urban mid-Western elementary schools. Without specific criteria, schools were nominated by their own districts. Four were apparently selected because they had improved student achievement, but their performance was hardly "exceptional". At the Leif Ericson School, for example, a K-8 school, the 12 year old cohort had improved its reading only 1.7 grade levels in 3 years. The 13+ cohort had managed 2.7 grade levels. Their improved grade levels of 5.0 and 6.5 remained well behind the 7th and 8th+ grade levels usually associated with those ages. At the Washington Park School, after improvement, only 25% of the students scored above grade level in math and only 23% in reading. As Brookover noted, this achievement "hardly justifies its characterization as an effective school." (Brookover, 1981, p. 440). A third school, West Vigo, experienced a 2-year increase in ITBS scores, but no data was presented on how much this increase was or for which grades. On the Gates reading test, scores had actually dropped the first year.

Brookover and Lezotte (1979) selected 8 Michigan elementary schools- 6 improvers and 2 decliners. Many reviewers cited this study as an example of effective schools research. Because our concern is teaching basic skills, it seems reasonable to expect that most students in model schools could pass 75% of the basic objectives. In 4 of the 6 schools, however, even after improvement, fewer than 39% of the students were passing this basic skills minimum in reading, and from 1/4 to 1/2 of them couldn't pass even 25% of the reading objectives. The performance in math was better, but two improvers still couldn't get half of their students to pass 75% of the objectives. Whatever conclusions the researchers in these two studies reached were limited by the schools' poor performance.

In spite of the fact that many studies were flawed, conclusions about grouping can still be reached. It seems that most effective schools employed flexible grouping or individualization in their instruction rather than whole group instruction.

Conclusion

Most effective schools in the literature organized their instruction around curriculum objectives, a single textbook series, and a narrow focus on the reading and math skills measured by standardized tests. There was a set of exceptions to this- schools that were organized around a broad well-rounded liberal arts curriculum, teaching with a diverse set of materials, and focused on higher order skills and student development.

This review also showed that effective schools employed a wide range of classroom structures from traditional to open, often hand-picked their teaching staffs, provided in-service training that was practical and built into the instructional program, and used flexible small group instruction or individualization rather than whole group instruction.

Flawed studies, though, prevented any firm conclusions concerning the use of phonics or direct instruction. Finally, the evidence on classroom reinforcement patterns was contradictory with some studies showing differences between effective and non-effective schools and other studies showing none.

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